

# Biopharmaceutical Products



C-FLEX® TUBING

C-FLEX® MOLDED ASSEMBLIES

C'EAL-FLEX™ TUBING SEALER

Provided by:

**Holland®**  
**APPLIED TECHNOLOGIES**  
[www.hollandapt.com](http://www.hollandapt.com)  
Phone: 800-800-8464

## TUBING FOR BIOPHARMACEUTICAL APPLICATIONS

### The Material Difference

C-Flex® is a unique, patented thermoplastic elastomer specifically designed to meet the critical demands of the pharmaceutical, research, biopharmaceutical and diagnostics industries.

C-Flex biopharmaceutical tubing has been used by many of the world's leading biotech and pharmaceutical processing companies for over 20 years. Each coil of C-Flex tubing is extruded to precise ID, OD and wall dimensions. All tubing is formulated to meet the standards of the biopharmaceutical industry and is QA tested before leaving the Saint-Gobain Performance Plastics production facility.

### Features

- Complies with USP Class VI standard
- Manufactured under strict GMPs guidelines
- Non-pyrogenic, non-cytotoxic, non-hemolytic
- Chemically resistant to concentrated acids and alkalis
- Significantly less permeable than silicone
- Low platelet adhesion
- Low protein binding
- Ultra-smooth inner bore
- Available in clear or opaque formulations
- Lot traceable
- Safe disposal through incineration

### Benefits

- Superior to PVC and silicone for many applications
- Longer peristaltic pump life
- Significantly fewer TOC extractables than PVC
- Heat-sealable, bondable and formable
- Remains flexible from -45°C to 135°C (-50°F to 275°F)
- Moderate cost compared to other tubing products
- Sterilizable by radiation, ETO, autoclave or chemicals
- All formulas are animal derived component free (ADCF)

### Applications

- Cell culture media
- Cell fermentation
- Diagnostic equipment
- Pharmaceutical production
- Vaccine production
- Pinch valves
- Laboratory research
- High-purity water
- Reagent dispensing
- Botanical product production
- Peristaltic pump segments
- Sterile filling and dispensing systems

### Physical Properties

Formulation Gamma Irradiation	374		072		082	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
Durometer, Shore A (ASTM D2240)	59	59	65	63	59	60
Tensile Strength, psi (ASTM D412)	800	800	1105	1065	900	950
Elongation, % (ASTM D412)	720	740	785	835	740	780
Tensile Modulus, @100%/300%, psi (ASTM D412)	230/390	215/370	270/420	275/425	240/400	230/390
Tensile Set @ 300% Stretch	16	18	12.2	12.4	19	20
Graves Tear Strength, pli Die C (ASTM D624)	155	155	155	152	150	160
Compression Set Constant Defl., "B" (22 hrs. @ 70°C), %	25	23	43	46	53	55
Water Absorption, % at 100% RH (ASTM D570)	0.004	0.009	0.006	0.009	0.017	0.009
Brittle Point, °C (ASTM D746)	-60	-68	-67	-69	-60	-58
Low Temperature Flexibility @ -40 °C (ASTM 380)	Pass	Pass	Pass	Pass	Pass	Pass

It is the user's responsibility to ensure the suitability and safety of C-Flex® for all intended uses/applications.  
Values reported above are not intended for sales specifications and some of the properties are not routinely measured.



## C-Flex® Biopharmaceutical Tubing Product Selection Guide

### Chemical Compatibility

- Acids, dilute/weak – acceptable
- Acids, strong/concentrated – acceptable
- Bases, dilute/weak – acceptable
- Bases, strong/concentrated – acceptable
- Salts – acceptable
- Alcohols – not recommended
- Organic solvents – not recommended
- Oil/Water emulsions – test

### Product Profile

C-Flex® biopharmaceutical tubing is part of a family of C-Flex products that includes micro-bore tubing, tight tolerance pump tubing and custom tubing formulations from 50A to 80A Durometer. Information on C-Flex bio-compatibility is available to assist in the validation of C-Flex for your application. Contact Saint-Gobain Performance Plastics at (800) 541-6880 or (727) 531-4191 to request a validation package or access to the FDA Drug Master File.

Tubing Catalog # (1)	Packaging Options (2)	ID x OD x Wall (inch decimals)	ID x OD (inch fractions)	ID x OD x Wall (in millimeters)
xxx-125-2	C50, S	.125 x .250 x .062	1/8 x 1/4	3,2 x 6,4 x 1,6
xxx-188-2	C50, S	.188 x .313 x .062	3/16 x 5/16	4,8 x 8,0 x 1,6
xxx-188-3	C50, S	.188 x .375 x .094	3/16 x 3/8	4,8 x 9,5 x 2,4
xxx-250-2	C50, S	.250 x .375 x .062	1/4 x 3/8	6,4 x 9,5 x 1,6
xxx-250-3	C50, S	.250 x .438 x .094	1/4 x 7/16	6,4 x 11,2 x 2,4
xxx-250-4	C50, S	.250 x .500 x .125	1/4 x 1/2	6,4 x 12,7 x 3,2
xxx-313-3	C50, S	.313 x .500 x .094	5/16 x 1/2	7,9 x 12,7 x 2,4
xxx-375-2	C50, S	.375 x .500 x .062	3/8 x 1/2	9,6 x 12,7 x 1,6
xxx-375-3	C50, S	.375 x .563 x .094	3/8 x 9/16	9,6 x 14,3 x 2,4
xxx-375-4	C50, S	.375 x .625 x .125	3/8 x 5/8	9,6 x 15,9 x 3,2
xxx-500-3	C50, S	.500 x .688 x .094	1/2 x 11/16	12,7 x 17,4 x 2,4
xxx-500-4	C50, S	.500 x .750 x .125	1/2 x 3/4	12,7 x 19,1 x 3,2
xxx-625-4	C50	.625 x .875 x .125	5/8 x 7/8	15,9 x 22,2 x 3,2
xxx-750-4	C15	.750 x 1.00 x .125	3/4 x 1	19,0 x 25,4 x 3,2
xxx-750-6	C15	.750 x 1.125 x .188	3/4 x 1-1/8	19,0 x 28,3 x 4,8
xxx-750-8	C15	.750 x 1.250 x .250	3/4 x 1-1/4	19,0 x 31,7 x 6,4
xxx-1000-6	C15	1.00 x 1.375 x .188	1 x 1-3/8	25,4 x 34,9 x 4,8
xxx-1000-8	C15	1.00 x 1.500 x .250	1 x 1-1/2	25,4 x 38,1 x 6,4
(1) FORMULAS: (xxx)		(2) PACKAGING OPTIONS		
082 – Clear, 60A Durometer ADCF		C50 – 50' Coils (15 m)		
374 – Clear, 60A Durometer ADCF		C15 – 15' Coils (4,5 m)		
072 – Opaque, 60A Durometer ADCF		S – Bulk spools are available for OEM product applications		
C-Flex is available through Authorized Distributors ONLY. Contact the Customer Service Department in Clearwater or Charny (phone numbers on back) for the name of the authorized C-Flex distributor in your area.				

## C'eal-Flex™ – TPE Ultra Sealer

### SYSTEM DESCRIPTION

The **C'eal-Flex™ TPE Ultra Sealer** measures 7" x 9" x 4" (18 x 25 x 10 cm), weighs 6 lbs (2,7 kg) and operates from regular 110-volt current and filtered air. It offers simple one-button operation and computer-controlled, adjustable sealing temperature and dwell times. The unit is easy to clean, portable and compact. One of the Remote Sealing Heads with 10-ft cable is required.

**Product ..... Catalog Number**

**C'eal-Flex Base Generator/Control Unit.....**150-007-001  
9" x 7" x 4" (18 x 25 x 10 cm) Includes both electric and pneumatic connectors

**Thin Wall Remote Sealing Head with 10 ft/3 m cable. ....**150-009-001  
Seals thin wall (.062"/1,6 mm) tubing: .250"/6,4 mm OD - .375"/9,6 mm OD.

**Thick Wall Remote Sealing Head with 10 ft/3 m cable. ....**150-010-001  
Seals thick wall (.125"/3,2 mm) tubing: .375"/9,6 mm OD - .750"/19,0 mm OD.

For more than four decades, Saint-Gobain Performance Plastics and its family of companies have supplied the world with innovative, high-performance polymer products for the most demanding applications. Our tradition of excellence goes back more than 300 years through our parent company, Compagnie de Saint-Gobain, one of the world's top 100 industrial corporations, with operations in more than 40 countries. This successful corporation has been built with the single purpose of serving the customer and a commitment to quality and leadership in each of the industries served.

## BIOPHARMACEUTICAL PRODUCTS MANUFACTURING FACILITIES

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*Consult a Saint-Gobain Performance Plastics Sales Representative for the product and material formulation that best suits your specific application needs.*

**WWW.BIOPHARM.SAINT-GOBAIN.COM**

*C'eal-Flex™ is a trademark.  
C-Flex® is a registered trademark.*

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**SAINT-GOBAIN**  
**PERFORMANCE PLASTICS**

**WARNING:** The content of Saint-Gobain tubing materials is not certified by the FDA for implant devices and is neither designed nor intended to be used in medical applications involving permanent implantation in the human body or permanent contact with body fluids or tissues. Failure to comply with this warning may lead to serious bodily injury or death.

**IMPORTANT:** It is the user's responsibility to ensure the suitability and safety of Saint-Gobain Performance Plastics materials for all intended uses. Laboratory, field or clinical tests must be conducted in accordance with applicable requirements in order to determine the safety and effectiveness for use of materials in any particular application. If intended for medical use, it is the user's responsibility to ensure that the materials to be used comply with all applicable medical regulatory requirements.

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